

Claims

[c1] An improved 2-stage large bandwidth amplifier comprising:

A first and second stage amplification circuit, each of the first and second amplification stages comprising at least one bipolar transistor, each bipolar transistor comprising a collector, emitter and base, wherein the first transistor of the first stage and first transistor of the second stage have emitters connected in series, the collector of the first transistor of said first stage and the base of the first transistor of the second stage forming a connecting node, the emitter of said first transistor of said first stage and said emitter of said first transistor of said second stage tied to a first supply voltage (Gnd);
an input terminal receiving the input signal (V_{in}) connected to the base of said first transistor of said first stage;
an output terminal connected to the collector of said first transistor of said second stage, the output terminal capable of supplying an output signal (V_{out});
a parallel feedback structure having at least two branches, the first branch having at least two diodes, said two diodes connected in series, wherein one of the

diodes is connected to the collector of said first transistor of said second stage and the other of the at least two diodes connected to a second supply voltage (V_{cc}), the second branch having a third bipolar transistor, the third transistor having a collector, emitter and base, said third transistor having a load resistor (R_f) in series with the emitter of the third transistor, the collector of the third transistor connected to the second supply voltage and the base of the third transistor connected to the common node of said at least two diodes, said third bipolar transistor supplying the feedback signal (V_f) at said connecting node of said first transistor of said first stage and first transistor of said second stage.

- [c2] The improved 2-stage large bandwidth amplifier of claim 1 wherein each diode is constructed with a bipolar transistor substantially identical to said first transistor of said second stage, the collector-base junction of said diodes shorted for matching therewith.